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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/313,184	05/18/1999	KANAME MIWA	Q54404	3561

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EXAMINER	
OLSEN, KAJ K	

ART UNIT	PAPER NUMBER
1753	

DATE MAILED: 02/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/313,184	MIWA ET AL.	
	Examiner	Art Unit	
	Kaj K Olsen	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 December 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *16-20,22-24 and 30-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *36 and 37* is/are allowed.

6)☒ Claim(s) *16-20,22-24, 30-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 16-20, 22-24 and 30-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato (USP 5,672,811) in view of Makino et al (USP 5,676,811).

3. These claims were previously rejected under 35 U.S.C. 102 and 103 over Kato '841 because electrode 28 is shown to have an area that is at least twofold of the electrode 24 (see previous office action for details as to how Kato '841 reads on the claimed subject matter). In the arguments, applicant urges that there is no discussion in Kato '841 about the width of the electrodes shown in fig. 2. Absent an understanding of the width, it is unclear whether the figure of Kato is suggestive of a twofold difference in area. This examiner agrees with the applicant's argument and has withdrawn the rejection under Kato '841 alone. However, having the electrodes of a gas sensor extend over the entire width range of a given chamber was known in the art. In particular, Makino demonstrates this. See, as an example, fig. 2 where pump electrode 8 and reference electrode 13 are shown to extend over the entire width of their respective chambers. There are a number of reasons one possessing ordinary skill in the art would have been motivated to do so. One, making the electrodes extends provides the maximum surface area for the electrode, thereby reducing any effective resistance, increasing the magnitude of the diffusion control. In addition, large electrodes (i.e. electrodes that extend the entire width of their chamber) also allow more sample to be analyzed per unit time. In addition, electrodes that span the entire chamber width would prevent any localization of NOx

concentration. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Makino for the sensor of Kato '811 in order to utilize any of the set forth advantages given above.

4. Claims 16-20, 22-24 and 30-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 10-38845 or Kato et al (USP 6,036,841) in view of Makino.

5. JP '845 and Kato '841 were utilized to reject these claims for reasons set forth in the previous office action. Analogous to Kato '811 above, the examiner is withdrawing the rejection over JP '845 or Kato '841 alone. Instead, the examiner had added the teaching of Makino for the same reasons illustrated above. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Makino for the sensor of either JP '845 or Kato '841 in order to utilize any of the set forth advantages given above.

Allowable Subject Matter

6. Claims 36 and 37 are allowed.

Response to Arguments

7. Applicant's arguments filed 12-2-2004 have been fully considered but they are not persuasive. Applicant traverses the examiner's use of the teaching of Makino. In particular, applicant urges that Makino does not read on the claimed invention. That may be the case, but this ignores how Makino was being particularly utilized in this case. In particular, it is being utilized *solely* to show that it is obvious to extend an electrode the entire width of the measurement chamber and thereby render obvious the use of electrodes all of the same width.

The previous examiner urged that there was no reason to believe that the widths of the various electrodes of Kato '811 would differ (see page 3 of the 9-11-2003 office action). Although the present examiner agreed with the previous examiner's conclusion then, the present examiner felt the rejection would be reinforced if an explicit showing of that page 3 conclusion could be provided. That is the basis for the use of the teaching of Makino. Namely, that it was conventional and obvious to make the various electrodes along a particular surface of a solid electrolyte layer the same width. The fact that various electrode combinations of Makino might or might not read on the claimed "twofold" or "on the same side" is irrelevant. The "twofold" and "on the same side" comes principally from the teachings of Kato '811 or JP '845 and the various shown electrode dimensions. The only thing missing from these two teachings is an explicit showing what the third dimension of the electrodes would be.

8. Applicant further urges that operational differences between Kato '811 and Makino would not have made it obvious to combine their two features. In particular, applicant urges that it make sense to arrange electrode 28 along the axis of the gas flow. First, it is unclear how applicant came to that conclusion because applicant has never cited where Kato '811 suggests such a thing. Second, even if the examiner accepts this conclusion about Kato '811, it is unclear why Makino's teachings of extending the electrodes along the entire width of the chamber would be somehow contrary to Kato '811's desired operation. In particular, an electrode across the entire chamber would still be in the gas flow. Only now that electrode would also extend to the edges of the gas chamber.

9. Applicant further urges that the combination of Makino and Kato '811 does not teach the obviousness of adjusting the area of the electrodes. However, it is not necessary for the prior art

to teach *adjusting* the area of the electrodes because that has never been claimed. What is being claimed is a sensor element that has, among other things, two electrodes that differ in size by at least twofold. If the prior art discloses or renders obvious such an arrangement, then the prior art meets this claim limitation even if the prior art never disclosed either adjusting the electrode size or any advantages of the disclosed or rendered obvious electrode sizes. If Kato '811 renders obvious the use of one electrode that is at least twice as large as another electrode, as the present rejection maintains, then it meets the claims. A patent cannot be granted for the applicant's discovery of a new reason for providing structure that was already rendered obvious by the prior art.

10. Applicant also urges that there is nothing in the cited prior art as to why one would apply the teaching of Makino to Kato '811no to Kato '811. However, the suggestion to combine need not come from the references themselves, but can come from knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the examiner already laid out a number of reasons why one possessing ordinary skill in the art would have had the electrodes of Kato '811 extend over the entire width of the various gas chambers. See paragraph 3 from the previous office action (also given above in this office action). Moreover, this concept of having an electrode extend all the way across a measurement chamber is hardly limited to Makino. In fact, restricting himself to just prior art of record in this application, the examiner finds numerous demonstrations of this concept. See fig. 1 of Mase (USP 4,657,659); fig. 2 of Nyberg (USP 4,724,061); fig. 1 of Kato (USP 4,668375); and fig. 7 of Hayakawa (USP 5,174,885). All of these examples demonstrate the same thing the examiner

relied on Makino for, namely the teaching of having an electrode extend all the way across a particular measurement chamber.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaj Olsen whose telephone number is (571) 272-1344. The examiner can normally be reached on Monday through Thursday from 5:30 A.M. to 3:00 P.M. and on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen, can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AU 1753
February 15, 2005

KAJ K. OLSEN
PRIMARY EXAMINER